

IN THE CLAIMS:

Please amend the claims as follows.

1. (Currently amended) A system for laser shock peening a workpiece having a confinement fluid film thereover, comprising:

a peening laser for projecting a pulsed laser beam at a target site on said fluid film atop said workpiece, wherein said peening laser includes an optically pumped laser rod and a Q-switch for generating said pulsed beam at a pulse repetition rate, said peening laser further including a driver for said Q-switch;

a monitor to monitor said film at said target site, said monitor including a probe laser for projecting a probe laser beam at said target site and an optical detector optically aligned with said target site for detecting reflection of said probe beam therefrom; ~~and~~

a controller operatively coupled to said peening laser and detector for initiating said pulsed laser beam in response to quality of said monitored film, said controller being operatively coupled to said Q-switch for emitting said pulsed beam in response to the quality of said monitored film, said controller being configured to enable said driver when said detector detects that quality of said film is normal and to disable said driver when said detector detects that quality of said film is abnormal;

a master clock for producing a clock signal to effect said pulse rate; and

a logical AND gate operatively coupled to said detector and said Q-switch driver for enabling said driver when said detector produces a relatively high voltage and disabling said driver when said detector produces a relatively low voltage.

2-4. (Cancelled)

5. (Currently amended) A system ~~according to claim 3, further~~ for laser shock peening a workpiece having a confinement fluid film thereover comprising:

a peening laser for projecting a pulsed laser beam at a target site on said fluid film atop said workpiece, wherein said peening laser includes an optically pumped laser rod and a Q-switch for generating said pulsed beam at a pulse repetition rate, and wherein said peening laser further includes a driver for said Q-switch;

a monitor to monitor said film at said target site, said monitor including a probe laser for projecting a probe laser beam at said target site and an optical detector optically aligned with said target site for detecting reflection of said probe beam therefrom;

a controller operatively coupled to said peening laser and detector for initiating said pulsed laser beam in response to quality of said monitored film, said controller being operatively coupled to said Q-switch for emitting said pulsed beam in response to quality of said monitored film, said controller being configured to enable said driver when said detector detects that quality of said film is normal and to disable said driver when said detector detects that quality of said film is abnormal;

a master clock for producing a clock signal to effect said pulse rate;

a focusing lens optically aligned between said detector and said target site;

a pinhole aperture optically aligned between said detector and said lens; and

a band-pass optical filter optically aligned between said detector and said aperture.

6. (Original) A system according to claim 5 wherein said pulse repetition rate of said peening laser is at least 10 cycles per second.

7. (Currently amended) A system according to claim [[3,]] 1 further comprising:

a plurality of optical detectors in a plane array for detecting images; and

an imaging lens optically aligned between said array of optical detectors and said target site for focusing an image of said target site on said array of optical detectors.

8. (Original) A system according to claim 7 wherein said controller is configured for measuring distance between a first reflection of said probe beam from the surface of said film and a second reflection of said probe beam from the surface of said workpiece below said film.

9. (Original) A system according to claim 8 wherein said controller is configured for determining thickness of said film at said target site from the measured distance, and for enabling said Q-switch driver when film thickness is sufficient to

conduct efficient peening and disabling said Q-switch driver when film thickness is insufficient to conduct efficient peening.

10. (Original) A system according to claim 8, further comprising a focusing lens optically aligned between said probe laser and said target site for focusing said probe beam at said target site.

11. (Original) A system according to claim 10 wherein said imaging lens comprises a plurality of cooperating lenses for inverting said target site image on said detection array.

12-22. (Cancelled)